

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

## (19) World Intellectual Property Organization

International Bureau



# ) (1881 - 1881 - 1881 - 1881 - 1881 - 1881 - 1881 - 1881 - 1881 - 1881 - 1881 - 1881 - 1881 - 1881 - 1881 - 18

(43) International Publication Date 22 April 2004 (22.04.2004)

### (10) International Publication Number WO 2004/034386 A1

(51) International Patent Classification7: G11B 7/00, 7/125

(21) International Application Number:

PCT/JP2003/013011

(22) International Filing Date: 9 October 2003 (09.10.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2002-297295 2002-312432

10 October 2002 (10.10.2002) JP 28 October 2002 (28.10.2002)

(71) Applicant (for all designated States except US): MAT-SUSHITA ELECTRIC INDUSTRIAL CO., LTD. [JP/JP]; 1006, Oaza Kadoma, Kadoma-shi, Osaka 571-8501 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): SHO.II. Mamoru [JP/JP]; 3-13-4-805, Mozuumemachi, Sakai-shi, Osaka 591-8032 (JP). KOISHI, Kenji [JP/JP]; 3-56-8, Keyakidai, Sanda-shi, Hyogo 669-1321 (JP). NAKAMURA, Atsushi [JP/JP]; 2-7-27-1107, Satanakamachi, Moriguchi-shi, Osaka 570-0002 (JP). ISHIDA, Takashi [JP/JP]; 13-14, Hashimotoisoku, Yawata-shi, Kyoto 614-8331 (JP).

TASAKA, Shuichi [JP/JP]; 2-3-1-503, Sumiregaoka, Takarazuka-shi, Hyogo 665-0847 (JP).

- (74) Agent: OKUDA, Seiji; OKUDA & ASSOCIATES, 2nd Floor, Kataoka Bldg., 3-6, Uchiawajimachi 1-chome. Chuo-ku, Osaka-shi, Osaka 540-0038 (JP).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM). European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO. SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: OPTICAL DATA RECORDING METHOD

(57) Abstract: The optical data recording method comprising the steps of: modulating data to be recorded, to generate a plurality of recording modulation codes; and emitting a pulse-like light beam to an optical disc, so that a plurality of recording marks and spaces which have lengths corresponding to the plurality of recording modulation codes are formed on the optical disc. In the optical data recording method, at least two of the plurality of recording marks comprises: a first pulse which is disposed at a front and forms a leading edge of the recording mark, a last pulse which is disposed at a backend and forms a trailing edge of the recording mark, and a multi-pulse train which is disposed between the first pulse and the last pulse and forms a center of the recording mark. The multi-pulse train has a pulse period longer than T which represents a reference period of the recording modulation code.

